

**IN THE CLAIMS:**

1 1. (Currently Amended) A computerized method for use in simulating an operation  
2 of an electronic system, said method being carried out using a computer system, said  
3 method comprising the steps of:

4 generating a physically-accurate description of the timing of a first portion of said  
5 system, said physically-accurate description comprising actual physical characteristics of  
6 said first portion;

7 generating an approximate mathematical model of the timing of a remaining por-  
8 tion of said system, said model being based upon hierarchical analysis of said remaining  
9 portion; and

10 using both said physically-accurate description and said approximate model to  
11 simulate the timing operation of said system.

1 2. (Original) A method according to claim 1, wherein:

2 said first portion and said remaining portion are selected according simulation  
3 optimization rules.

1 3. (Original) A method according to claim 1, wherein:

2 said first and remaining portions are selected so as to optimally reduce simulation  
3 error.

1 4. (Canceled)

1 5. (Currently Amended) A computerized system for use in simulating an operation  
2 of an electronic system, comprising the steps of:  
3 a modeling engine that modifies a first model of said electronic system, said first  
4 model including only hierarchical analysis mathematical functions estimating timing op-  
5 eration of said electronic system, said modeling engine modifying said first model to in-  
6 clude both at least one hierarchical analysis mathematical function estimating timing op-  
7 eration of a portion of said electronic system and a physically-accurate description of an-  
8 other portion of said electronic system; and  
9 a simulation engine that simulates the timing operation of said electronic system  
10 based upon both said at least one function and said physically-accurate description.

C 1 6. (Original) A computerized system according to claim 5, wherein:  
2 said portions are selected so as to optimally reduce simulation error.

dy 1 7. (Original) A computerized system according to claim 5, wherein:  
2 said portions are selected based upon simulation optimization rules.

1 8. (Canceled)

1 9. (Previously Presented) A computer-readable memory containing computer-  
2 executable program instructions comprising instructions for:  
3 generating a physically-accurate description of the timing of a first portion of an  
4 electronic system, said physically-accurate description comprising actual physical char-  
5 acteristics of said first portion;

6 generating an approximate mathematical model of the timing of a remaining por-  
7 tion of said system, said model being based upon hierarchical analysis of said remaining  
8 portion; and  
9 simulating timing operation of said system using both said description and said  
10 model.

1 10. (Original) A computer-readable memory according to claim 9, wherein:  
2 said portions are selected to optimally reduce simulation error.

1 11. (Original) A computer-readable memory according to claim 9, wherein:  
2 said first portion and said remaining portion are selected according to simulation  
3 optimization rules.

1 12. (Canceled)

1 13. (Previously Presented) A computerized method for use in simulating an operation  
2 of an electronic system, said method being carried out using a computer system, said  
3 method comprising the steps of:

4 dividing a representation of a system presented on a user interface into a first por-  
5 tion of said system and a second portion of said system;

6 generating, in response to said dividing, a physically-accurate description of said  
7 first portion of said system, said physically-accurate description comprising actual physi-  
8 cal characteristics of said first portion;

9 generating, in response to said dividing, an approximate mathematical model of  
10 said second portion of said system, said model being based upon hierarchical analysis of

11 said remaining portion; and  
12 using both said physically-accurate description and said approximate model to  
13 simulate the operation of said system.

1 14. (Previously Presented) A computerized system for use in simulating an operation of  
2 an electronic system, comprising:

3 a user interface to divide said system into a first part and a second part;  
4 a modeling engine, responsive to dividing said system into said first part and said  
5 second part, that first models said first part of said system by a physically accurate de-  
6 scription of said first part of said electronic system to produce a first model, said model-  
7 ing engine secondly developing a second model of said second part of said electronic  
8 system by including only hierarchical analysis approximate mathematical functions esti-  
9 mating operation of said second part of said electronic system; and

10 a simulation engine that simulates the operation of said electronic system based  
11 upon both said first model of said physically accurate description and said second model  
12 of said hierarchical analysis approximate mathematical functions

1 15. (Previously Presented) A computer-readable memory containing computer-  
2 executable program instructions comprising instructions for:

3 dividing a representation of a system presented on a user interface into a first por-  
4 tion of said system and a second portion of said system;

5 generating, in response to said dividing, a physically-accurate description of said  
6 first portion of said system, said physically-accurate description comprising actual physi-  
7 cal characteristics of said first portion;

8 generating, in response to said dividing, an approximate mathematical model of  
9 said second portion of said system, said model being based upon hierarchical analysis of  
10 said remaining portion; and

11 using both said physically-accurate description and said approximate model to  
12 simulate the operation of said system.

1 16. (Previously Presented) A computerized system for use in simulating an operation  
2 of an electronic system, comprising:

3 means for generating a physically-accurate description of said first portion of said  
4 system, said physically-accurate description comprising actual physical characteristics of  
5 said first portion;

6 means for generating an approximate mathematical model of said second portion  
7 of said system, said model being based upon hierarchical analysis of said remaining por-  
8 tion; and

9 means for using both said physically-accurate description and said approximate  
10 model to simulate the operation of said system.

1 17. (Previously Presented) A computerized system for use in simulating an operation  
2 of an electronic system, comprising:

3 means for dividing a representation of a system presented on a user interface into  
4 a first portion of said system and a second portion of said system;

5 means for generating, in response to said dividing, a physically-accurate descrip-  
6 tion of said first portion of said system, said physically-accurate description comprising  
7 actual physical characteristics of said first portion;

8 means for generating, in response to said dividing, an approximate mathematical  
9 model of said second portion of said system, said model being based upon hierarchical  
10 analysis of said remaining portion; and

11 using both said physically-accurate description and said approximate model to  
12 simulate the operation of said system.